Amendments to the Claims:

This listing of claims will replace all prior versions and listing of claims in the application.

Listing of Claims:

1. (currently amended) A bottom-to-surface connection device comprising at least one undersea pipe or riser ~~(1, 1a-1b)~~ including at least one float ~~and possibly including only one float (2, 2_1-2_7)~~, said at least one float being connected at its bottom end to a junction device ~~(8)~~ creating a leaktight flexible joint between the bottom end of the float ~~(2)~~ and said riser ~~(1a)~~, ~~the connection device being characterized in that~~ wherein said junction device ~~(8)~~ is interposed between and secured to a bottom portion ~~(1a)~~ of the riser going down to the sea bottom and a top portion ~~(1b)~~ of the riser passing through said float and rising to the surface, said junction device ~~(8)~~ comprising ~~at least~~:

- a first forged body of revolution ~~(22)~~ secured to the top end of said bottom portion ~~(1a)~~ of the riser, and forming an internal tubular duct section ~~(223)~~ having substantially the same diameter as said bottom portion of the riser; and

- a second forged body of revolution ~~(24)~~ secured to the bottom end of said top portion ~~(1b)~~ of the riser, and forming an internal tubular duct section ~~(24_4)~~ having substantially the same diameter as said top portion ~~(1b)~~ of the riser;

- said first and second forged bodies ~~(22, 24)~~ being interconnected in flexible and leaktight manner by at least a first flange ~~(23)~~ in the form of a body of revolution secured in leaktight and reversible manner to said second forged body ~~(24)~~ and connected to said first forged body ~~(22)~~ by at least a first laminated abutment ~~(30)~~ in the form of a body of revolution,

comprising a plurality of elastomer layers interposed between rigid reinforcements ~~preferably made of metal~~ defining surfaces of revolution having the same axis as the common longitudinal axis of revolution ZZ' of said first and second forged bodies ~~(22, 24)~~ and said first flange ~~(23, 23a 23b)~~, said surfaces of revolution being frustoconical in shape or skew surfaces~~, such as~~ comprising surfaces of sections that are ellipsoidal or parabolic or hyperbolic ~~or preferably spherical in shape~~.

2. (currently amended) [[A]] The bottom-to-surface connection device according to claim 1, comprising an undersea pipe or riser ~~(1, 1a 1b)~~ tensioned by at least one float ~~(2, 2_1, 2_7)~~ constituted by a can presenting a cylindrical casing ~~(20)~~ surrounding said pipe ~~(1b)~~ coaxially, located on the high underwater portion of said pipe ~~(1, 1a 1b)~~, said pipe ~~(1, 1a, 1b) preferably being held and guided by a surface guide device (4, 6) located at a floating support (10) and~~ including a said junction device ~~(8)~~ for said can ~~(20)~~, ~~the connection device being characterized in that~~ wherein:

[[-]] said first forged body ~~(22)~~ presents in its top portion an outer first surface of revolution ~~(22_1)~~ that is ~~preferably~~ one of frustoconical in shape ~~or~~ and of ellipsoidal section; and

- said second forged body of revolution ~~(24)~~ secured to the bottom end of said top portion ~~(1b)~~ of the riser~~, preferably by welding (24a)~~, presents in its bottom portion a bottom first surface ~~(24k)~~; and

[[-]] said first flange ~~(23, 23a 23b)~~ presents:

[[•]] an inner first surface of revolution ~~(23_1)~~ of one of frustoconical shape ~~or~~ and of ellipsoidal section, said inner first surface ~~(23_1)~~ of the first flange ~~(23, 23a 23b)~~ and said outer first surface ~~(22_1)~~ of the first forged body ~~(22)~~ being situated facing each other and co-operating

elastically and in leaktight manner via [[a]] said first laminated abutment ~~(30)~~ in the form of a body of revolution that is one of frustoconical in shape ~~or respectively~~ and of ellipsoidal section, comprising a plurality of layers of elastomer sandwiched between rigid steel reinforcing sheets ~~of rigid material, in particular steel sheets~~, bonded to said inner first surface ~~(23_1)~~ and said outer first surface ~~(22_1)~~ thus bonding together said first flange ~~(23, 23a-23b)~~ and said first forged body ~~(22)~~; and

[[•]] at least a portion of a top surface ~~(232)~~ of said first flange ~~(23, 23a-23b)~~ co-operating in leaktight manner~~, preferably via at least one O-ring (28)~~, with said bottom surface ~~(24_1)~~ of said second forged body of revolution ~~(24)~~, said top surface portion ~~(23_2)~~ of said first flange ~~(23, 23a-23b)~~ and said top surface ~~(24_1)~~ of said second forged body ~~(24)~~ being secured to each other in leaktight and reversible manner~~, preferably by bolting (27)~~; and

[[-]] said outer casing ~~(20)~~ of the float ~~(2)~~ being secured to one of a top surface ~~(24_2)~~ of said second forged body ~~(24) or to~~ and a top surface ~~(21_1)~~ of a second flange ~~(21)~~ in the form of a body of revolution having a bottom surface ~~(21_2)~~, itself bonded in leaktight and reversible manner~~, preferably by bolting (25) and~~ via at least one O-ring ~~(26),~~ to a portion of said top surface of revolution ~~(23_2)~~ of said first flange ~~(23, 23a - 23b).~~

3. (currently amended) [[A]] The device according to claim 1 ~~or claim 2~~, ~~characterized in that~~ wherein said second forged body of revolution ~~(24)~~ includes in its bottom portion an outer second surface ~~(24_3)~~ of one of frustoconical shape ~~or preferably of~~ ellipsoidal section, and said outer second surface of revolution ~~(24_3)~~ is situated facing and co-operates elastically and in leaktight manner with an inner second surface of revolution ~~(22_2)~~ of one of frustoconical shape ~~or respectively of~~ and ellipsoidal section, said inner second surface ~~(22_2)~~

being situated in the top portion of said second forged body ~~(22)~~, and said inner second surface ~~(22_2)~~ being connected to said outer second surface ~~(24_3)~~ via a second laminated abutment ~~(31)~~ in the form of a body of revolution constituted by a plurality of elastomer layers sandwiched between rigid reinforcing sheets, ~~in particular of steel,~~ that are one of frustoconical in shape ~~or respectively of~~ and ellipsoidal section, and that are bonded to said outer second surface ~~(24_3)~~ and to said inner second surface ~~(22_2)~~.

4. (currently amended) [[A]] The device according to claim 2 ~~or claim 3~~, ~~characterized in that~~ wherein said first abutment ~~(30) and where appropriate said second abutment (31)~~, said outer first surface ~~(22_1)~~ of the first forged body ~~(22)~~, and said inner first surface ~~(23_1)~~ of the first flange ~~(23, 23a 23b), and, where appropriate said outer second surface of revolution (24_3) of the second forged body (24), and said inner second surface of revolution (22_2) of the first forged body (22)~~ are ~~all~~ frustoconical in shape about the same said axis of revolution ZZ', with an angle of the apex ß lying in the range 30° to 80°, ~~preferably in the range 40° to 70°,~~ the apexes of the various frustoconical surfaces being situated below said frustoconical surfaces, and the various frustoconical surfaces ~~either~~ sharing one of a common angle at the apex ß ~~or~~ and a common apex ~~C~~.

5. (currently amended) [[A]] The device according to ~~any one of claims~~ claim 1 ~~to 3~~, ~~characterized in that~~ wherein said first abutment ~~(30), and, where appropriate said second abutment (31), said outer first surface (22_1) of the first forged body (22), said inner first surface (23_1) of the first flange (23, 23a 23b) , and, where appropriate said outer second surface of revolution (24_3) of the second forged body (24), and said inner second surface of revolution (22_2)~~

~~of the first forged body (22) are all~~ is of ellipsoidal section~~, preferably of spherical section, all being~~ substantially centered on the ~~common~~ point O situated above said ~~surfaces~~ surface and on said axis of revolution ZZ'

6. (currently amended) [[A]] The device according to ~~any one of claims~~ claim 1 ~~to 5~~, ~~characterized in that~~ wherein said first and second forged bodies ~~(22, 24)~~ and said first flange ~~(23, 23a 23b)~~ define a first internal chamber ~~(40)~~ which ~~preferably~~ co-operates with pressure sensor means ~~(41, 42)~~ for monitoring the pressure inside said chamber ~~(40)~~.

7. (currently amended) [[A]] The device according to claim 6, ~~characterized in that~~ wherein said first internal chamber ~~(40)~~ is defined by the top portion of said first forged body ~~(22)~~ and by ~~the~~ free portions of ~~said~~ a bottom surface of revolution ~~(24_1)~~ of said second forged body ~~(24)~~, said ~~concave~~ inner first surface of revolution ~~(23_1)~~ of said first flange ~~(23, 23a 23b)~~, and said ~~convex~~ outer second surface of revolution ~~(24_3)~~ of said second forged body ~~(24)~~.

8. (currently amended) [[A]] The device according to ~~any one of claims~~ claim 2 ~~to 7~~, ~~characterized in that~~ wherein said outer casing ~~(20)~~ of the float ~~(2)~~ is secured to an internal second pipe ~~(3)~~ of greater diameter than said riser ~~(1, 1b)~~, ~~said internal second pipe (3) preferably being a reinforced pipe of thickness greater than said riser (1), and in that it~~ and wherein the device includes [[a]] said second flange ~~(21)~~ in the form of a body of revolution to which the bottom end of said outer casing ~~(20)~~ of the float ~~(2)~~ and the bottom end of said internal second pipe ~~(3)~~ are secured~~, preferably~~ by welding ~~(21a, 21b)~~, said second flange ~~(21)~~ surrounding said second forged body ~~(24)~~ so that a second inner chamber ~~(45)~~ is defined by an inner surface of

revolution ~~(21_3)~~ of said second flange ~~(21)~~ having the same axis of revolution ZZ', by said top surface of revolution ~~(24_2)~~ of said second forged body ~~(24)~~, by the cylindrical outer surface ~~(1_1)~~ of said top portion ~~(1b)~~ of the riser and the cylindrical inside surface ~~(3_1)~~ of said internal second pipe ~~(3)~~, and by a closure flange ~~(5)~~ at the top ends of said internal second pipe ~~(3)~~ and of said top portion ~~(1b)~~ of the riser~~, said second chamber (45) preferably co-operating with means for monitoring the pressure (47, 48) inside said second chamber (45)~~.

9. (currently amended) [[A]] The device according to ~~any one of claims~~ claim 2 ~~to~~ 8, ~~characterized in that~~ wherein said top surface peripheral ~~(23_2)~~ of the first flange ~~(23, 23a-23b)~~ and said bottom surface ~~(24_1)~~ of the second forged body ~~(24)~~, ~~and where appropriate said bottom surface (21_2) of said second flange (21),~~ are annular plane surfaces.

10. (currently amended) [[A]] The device according to claim 8 ~~or claim 9~~, ~~characterized in that~~ wherein said internal second pipe ~~(3)~~ extends above said float ~~(2)~~, ~~preferably in the form of a reinforced pipe of thickness greater than said riser (1) which it surrounds~~, and ~~preferably~~ a holding and guide device ~~(4, 6)~~ serves to guide said internal second pipe ~~(3)~~ relative to said floating support ~~(10)~~.

11. (currently amended) [[A]] The device according to ~~any one of claims~~ claim 1 ~~to~~ 10, ~~characterized in that~~ wherein the top end of the float ~~(2)~~ is secured to one of the top portion ~~(1b)~~ of the riser ~~(1) or of~~ and said internal second pipe ~~(3)~~ via a rigid junction ~~(8_1)~~.

12. (currently amended) [[A]] The device according to ~~any one of claims~~ claim 1 ~~to~~

~~11~~, ~~characterized in that~~ wherein said float ~~(2)~~ is a single float extending over a length of approximately 40 m to approximately 100 m in order to confer buoyancy enabling substantially the entire bottom-to-surface connection to be tensioned~~, said float (2) preferably being made up of segments that are assembled to one another, each being constituted by a cylindrical box, which boxes are preferably individually sealed (2k, 2.9, and secured mechanically to one another in the longitudinal direction ZZ'~~.

13. (currently amended) [[A]] The device according to ~~any one of claims~~ claim 1 ~~to 11~~, ~~characterized in that~~ wherein the buoyancy of said undersea pipe ~~(1)~~ is provided by said float without adding any additional tensioning system that is secured to the floating support ~~(10)~~.

14. (currently amended) [[A]] The device according to ~~any one of claims~~ claim 1 ~~to 13~~, ~~characterized in that it includes~~ further comprising stabilizer means ~~(60, 61)~~ in the bottom portion ~~(27)~~ of the float ~~(2) having the effect of~~ for at least one of increasing the mass of water ~~it~~ the device entrains when it moves, ~~or~~ and lowering the center of gravity of the top portion of the pipe in the float ~~(2)~~.

15. (currently amended) [[A]] The device according to claim 14, ~~characterized in that a~~ wherein said stabilizer means comprise a helical ramp ~~(61)~~ surrounding the bottom portion ~~(27)~~ of said float ~~(2)~~ close to its bottom end.

16. (currently amended) [[A]] The device according to claim 14, ~~characterized in that a~~ wherein said stabilizer means comprises an additional peripheral mass ~~(60)~~ situated around

the bottom portion ~~(27)~~ of the float ~~(2)~~.

17. (currently amended) [[A]] The device according to ~~any preceding~~ claim 1, ~~characterized in that~~ wherein said first flange ~~(23)~~ comprises two portions ~~(23a 23b)~~ in which the first portion ~~(23a)~~ is a body of revolution including said inner first surface ~~(23_1)~~, and said second portion ~~(23b)~~ is a peripheral flange including ~~said~~ a top surface of said first flange ~~(23_2)~~, said second portion ~~(23b)~~ being secured in leaktight and reversible manner to said first portion ~~(23a)~~ via at least one O-ring ~~(29)~~ by securing in leaktight and reversible manner said top surface ~~peripheral (23_2)~~ of the first flange ~~(23)~~ to ~~said~~ a bottom surface ~~(24_1)~~ of said forged second body ~~(24)~~.